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AMENDMENTS TO THE CLAIMS

- 1-5. (Canceled)
- 6. (Currently amended) The method according to claim 1 comprising the steps consisting of: A method for effecting a homologous recombination between a double-stranded native nucleic acid segment in a cell and a donor nucleic acid segment introduced into the cell, which method comprises the steps consisting of:
- a) providing a pair of primers complementary to the 5' and 3' ends of a first double-stranded native nucleic acid sequence, wherein one of the primers is a modified adapter segment which contains one or several ribonucleotide(s) at its 3'-end, wherein said adapter segment is linked to a third strand oligonucleotide which comprises a base sequence capable of forming a triple helix at a binding region on one or both strands of a second double-stranded native nucleic acid segment;
 - b) amplifying said first native nucleic acid sequence,
 - c) isolating the amplification product thus obtained,
- d) treating the isolated amplification product in conditions sufficient to allow destruction of said ribonucleotide, thereby providing a nucleic acid targeting system comprising:
 - (i) said third strand oligonucleotide,
- (ii) said amplification product as a donor nucleic acid segment comprising a nucleic acid sequence substantially homologous to the native nucleic acid segment so that the donor sequence is capable of undergoing homologous recombination with the native sequence at the target region,
- (iii) said adapter segment bound to said donor nucleic acid segment through Watson-Crick base pairing, the adapter segment being linked to said third strand oligonucleotide,

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e) introducing said nucleic acid targeting system into a cell <u>ex vivo</u> comprising a second native nucleic acid different from the first native nucleic acid;

- f) allowing the nucleotide said third strand oligonucleotide to bind to the second native nucleic acid segment to form a triple helix nucleic acid, thereby inducing homologous recombination at the native nucleic acid segment target region; and
- g) allowing homologous recombination to occur between the native and donor nucleic acid segments;

wherein said donor nucleic acid is between more than 100 and 1,000,000 bases in length.

- 7. (Original) The method according to claim 6, wherein step d) comprises enzymatic or mild alkaline treatment.
- 8-26. (Canceled)